

## **INHALATION.**



# **I N H A L A T I O N,**

THE

## **MOST RATIONAL TREATMENT**

FOR

**DISEASES OF THE RESPIRATORY ORGANS.**

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## INHALATION.

WE have no hesitation in laying these pages, based on a pamphlet of Dr. Emil Siegle of Stuttgart, before the members of the medical profession, as well as before the general public. They contain in a condensed form an account of what has been done during the last few years towards treating diseases of the respiratory organs after a new method.

We have heard some medical men assert that the method of which we speak is not new;—that it has already been practised, but put aside and forgotten as useless. It has however of late been proved, (and we trust our readers will agree with us, if they peruse this little work with attention,) that the new method is so fully supported by science, and has produced such results, that when once adopted it can never again be consigned to oblivion. Should, however, the novelty of the treatment be denied by any one referring us back to the inhalation of steam or ethereal oils, we assure them that we ourselves do not look upon the inhalation of such remedies as anything new. On the contrary, to

the best of our knowledge such means as these have been resorted to from time immemorial, not only by medical men, but by many others on whom the care of invalids has devolved, and frequently with very good effect. We challenge any medical man who may make such an assertion to prove it by reference to medical literature. Every important novelty has been and still is recorded there, and the treatment of diseases of the respiratory organs by means of inhalation is an important novelty which nobody can now deny.

The most important fact in this new system is, that all medicines capable of being dissolved in water or alcohol, if advisable for administration, can be used in the manner about to be described. The method of treatment which we refer to here, has never till now been in use, from the very simple reason that the mechanical means for it did not before exist. We will here pre-suppose that no one can believe that a chemical solution of any substance will evaporate as such in the form of steam, if the water be made to boil ; the merest rudiments of chemical and physical laws teach us that the water only evaporates, whilst the substance dissolved in it remains in the vessel. We trust that persons who may turn to these pages, seeking advice which may lead to ultimate cure, or at least alleviation of their sufferings, will rejoice to find the system in question as simple as it is self-evident.

There is one doubt which, if raised against the whole system of inhalation, might be fatal, were it not in our

power to meet it with facts. Some persons may ask themselves how they are to be certain that the medicated fluids really come in contact with the parts on which they are intended to act. We will here mention some experiments which have been made by scientific men for the purpose of convincing themselves and others.

Lewin examined in numerous cases the expectoration of charcoal-crushers, stone-masons, wadding-makers, and workers in china manufactories, and also the lungs of many of these individuals after death. He always found particles of the substances in the midst of which they worked, in the expectoration ; and the particles of pointed form had penetrated into the substance of the lungs themselves. By experiments on animals he proved the same thing.

Demarquay experimented on a number of dogs and rabbits, and found that the pulverized fluids which they had inhaled were present on the whole surface of the respiratory organs.

The former, with Schnitzler, Störk, and Gerhardt, had all opportunities of proving the penetration of the pulverized fluids, on individuals who had abnormal openings in the trachea (fistula). The openings were stopped, medicated fluids inhaled through the mouth, and the presence of the medicines in the trachea was afterwards proved by chemical tests applied through the abnormal opening.

Professor Zdekauer, in St. Petersburg, found chloride

of iron in the lungs of an individual who had died immediately after inhaling it for haemorrhage. Dr. Holm chemically proved the presence of iron in the whole tissue of the lungs, in a much greater quantity than could otherwise have been found in the blood of those organs. Dr. Schulz proved the same thing in a similar case.

Trousseau wonders that any difference of opinion can exist respecting the penetration of the medicines, and advises that great care be taken when strong remedies are applied, so that too much of them be not inhaled.

Poggiale—who was appointed by the Academy of Paris to examine into this question, and who accordingly did so with scientific accuracy—declared that no doubt whatever could exist that the pulverized fluids entered into the whole of the respiratory organs.

We think no one will doubt the immense advantage of bringing the medicine into direct contact with the part affected, rather than administering it through the stomach, where it is supposed to be taken up into the fluids of the body, and by this means to reach the seat of the disease. The correctness of this latter supposition has, however, very frequently been doubted.

We may further state that there are remedies—many of which are among the most certain and efficacious in their action—which have hitherto been necessarily and totally excluded in the treatment of the respiratory organs, because they form insoluble chemical combinations by coming in contact with the mucous

membrane, and the secretions and contents of the stomach; they consequently only act on these. We therefore, by using inhalation, not only gain in the manner of application and the intensity of the effect, but also in the number of substances at our command.

But just because the effect of this local treatment is powerful, the patients who wish to make use of it must be warned not to do so except under the guidance of an experienced medical man, for the consequences of a mistake may be immediate and severe, just as the favourable effects of judicious and scientific treatment will soon be evident.

Many of the cases mentioned here have been observed in concert with Dr. Emil Siegle.

Inhalation has been so successfully used in other countries, that the instances we shall here record may well induce members of the profession in this country to convince themselves of its value by personal experience.

#### GENERAL EFFECTS OF INHALATION.

The action of inhaled medicines is chiefly local; they exercise their specific effect by coming in direct contact with all the surfaces, from the membranes of the mouth and nose down to the tissue of the lungs. They promote or check expectoration, act as tonics or alteratives, &c.

We may produce general as well as local effects by the choice and combination of remedies. When we

consider the immense surface of the mucous membrane of the respiratory organs, and its great capability of resorption, this statement will not appear too bold. We may safely conclude that many remedies thus administered, act on the constitution quite as efficiently as if given through the stomach, and some medicines even more efficiently and quickly. Therefore we must seek to choose remedies for inhalation which cannot act injuriously on the constitution, but, if possible, such as will act beneficially, generally as well as locally. For instance, when we have to administer a styptic or astringent medicine to a patient in whom we see symptoms of poverty of blood, we should give sesqui-chloride of iron rather than tannic acid, alum, &c.

The warm steam inhaled along with the medicines (see the description of Dr. Siegle's apparatus), produces a very favourable effect, and the deep and long inspirations and expirations that have to be made while inhaling, and which bring into action all those parts of the lungs capable of breathing, are a very beneficial exercise. Another important though negative advantage is, that the stomach—whose healthy action it is most important to maintain, particularly in chronic complaints—is not disordered by medicines administered solely with the view of acting on the respiratory organs. We will here only instance morphia, a medicine indispensable in many complaints of the lungs, but which is known to act very injuriously on the digestion, if frequently taken.

## DISEASES, AND THEIR TREATMENT BY INHALATION.

### DISEASES OF THE MUCOUS MEMBRANE OF THE NOSE.

*The Acute Form.*—This very common complaint, which is frequently the initial symptom of protracted catarrh, and which often spreads downwards to the throat and lungs, can be cut short by judicious inhalation. Astringent and alterative medicines, such as alum, tannin, and nitrate of silver, are those from which we would have to select.

*The Chronic Form.*—In this affection, where there is usually an increased and altered secretion (*coryza*), and often ulceration (*ozæna*), the above remedies may also be used, but we can especially recommend iodine.

### INFLAMMATION OF THE MUCOUS MEMBRANE OF THE THROAT. (*Angina catarrhalis.*)

*The Acute Form.*—The advantage of inhalation over the gargles usually prescribed is evident, for the latter never reach the back part of the throat; and the exertion of using the gargle frequently increases the inflammatory symptoms. Children, it is well known, can often not be brought to use gargles at all, while the act of inhalation is usually acceptable to them.

The remedies are the same as those recommended in “inflammation of the mucous membrane of the nose.”

*The Chronic Form.*—This disease, which more frequently than the former, implicates the adjacent organs, even down to the larynx, does not easily yield to any medical treatment, and often severely tires the patience both of the sufferer and the physician. The affected parts are no longer within reach of gargles. In such cases inhalation is so valuable, that even its opposers must here confess its worth. Sales-Girons, Fieber, Gerhardt, Lewin, and Siegle, have reported such innumerable cases of successful treatment, that it is impossible to quote them all. The chief remedies which they have applied are: alum, tannin, nitrate of silver, bi-carbonate of soda, and sulphuretted water. If ulcers of the mucous membrane are present, the use of nitrate of silver is imperative. In the most obstinate cases of this disease, it is sometimes necessary to touch the inflamed parts with caustic, in substance, or with a stronger solution of iodine than can be given in inhalation.

#### CRUPO OF THE THROAT. (*Pharyngitis crouposa.*)

This affection is usually only an extension of croup of the windpipe (*Laryngitis crouposa*), or occurs in the course of typhus or pyohæmia. It also appears occasionally as an independent disease. We should be justified in such cases, as also in diphtheria, in employing inhalations of nitrate of silver, tannin, lime-water, or chlorate of potash, which latter is much recommended.

SWELLING OF THE TONSILS. (*Angina tonsillaris.*)

In this affection inhalation not only greatly alleviates the pain and sense of suffocation, but also prevents suppuration. The remedies (besides the inhalation of simple steam) are those mentioned under the head of "Acute Inflammation of the Mucous Membrane of the Throat."

*Chronic Form.*—In the chronic form of this complaint, chromic acid has been recommended. When considerable enlargement of the tonsils is present, extirpation is indicated, and no other means are of much avail.

SYPHILITIC AFFECTIONS OF THE PALATE AND THROAT.

(*Angina syphilitica.*)

Surprising results have been attained in this affection by means of inhalation. The chief remedy resorted to is corrosive sublimate, *vide* Briau, Demarquay, Lewin, Schnitzler, Waldenburg, and others.

DISEASES OF THE LARYNX. *Laryngitis.*

*Acute Form.*—The symptoms in this case consist in great hoarseness, and often total loss of voice, accompanied by a continual, almost irresistible inclination to cough. Irritation in the larynx is complained of, and the patient feels pain if external pressure be applied. Waldenburg recommends inhalations of a solution of common salt. In one very violent attack, a solution of

morphia was prescribed, with great success. Alum, tannin, and muriate of ammonia are also recommended.

*The Chronic Form.*—We consider that no medical man at the present day can do justice to this affection, without first making use of the Laryngoscope, and by this means ascertaining what progress the disease has made, and the changes it has produced in the larynx. Then, and then only, can he select from among a great number of medicines those suited for inhalation, in each peculiar case.

When the catarrh has not existed very long, and when the cough is not severe, and the expectoration only moderate, and the difficulty of breathing and hoarseness slight, the laryngoscope shows a dark-red or dull-blue colour, and thickening of the mucous membrane, with granulated surface. The vocal cords are reddened and swollen. In this case inhalations of alum, tannin, or nitrate of silver are indicated. Schnitzler relates an instance, where, in this stage of the affection, a patient had suffered for several years, and had entirely lost his voice for nearly eight months ; after inhalations of alum had been continued for *two days*, the voice was completely restored. If the patient suffers principally from expectoration, Siegle prescribes first a solution of muriate of ammonia, or common salt, and afterwards astringents.

When the laryngoscope shows ulceration and partial swelling of the mucous membrane, alum, tannin, and nitrate of silver must be used in stronger solutions.

Sometimes caustic in substance must be applied, guiding the hand with the assistance of the laryngoscope. A complete recovery of the voice is only possible if the continuity of the vocal cords has not been permanently injured by ulcers. Polypi must of course be removed by operation, but the abnormal secretions which often appear in consequence of their presence may be treated by inhalation.

If a thickening and induration of the sub-mucous tissue should be established as a consequence of catarrh, Lewin and Waldenburg employ inhalations of iodine. Under this head we may mention that hoarseness and loss of voice which so frequently affects clergymen, public speakers, teachers, actors and singers. In such cases the laryngoscope generally shows different stages of congestion, inflammation, and catarrh of the pharynx, larynx, and trachea. Siegle, Troussseau, and Lewin have treated very numerous cases of this nature by inhalation, and the results were extremely satisfactory, and often really surprising.

#### GROUP. (*Laryngitis crouposa.*)

The local treatment of this disease was first introduced by Bretonneau. A sponge dipped in a strong solution of nitrate of silver was applied to the inflamed larynx, and this treatment was followed with more success than any other before known. We had opportunities during practice in Germany of treating num-

rous cases of croup, from the first stage of the disease to the necessary performance of tracheotomy, and of all methods of treatment Bretonneau's proved the most successful. We may now, however, almost conclude, from the cases lately given in medical literature, that inhalation is a still more successful remedy; and that even where tracheotomy is no longer indicated—from the disease having extended to the finer bronchial tubes—inhalation may afford hope of recovery in this dreadful, and for children, so often fatal illness. Of course in instances where the poisoning of the blood has proceeded too far, or where the constitution of the little patient has been too much reduced by blood-letting or other weakening treatment, no medical care can avail. Siegle relates a case in which he successfully treated a very young child, in an attack of this complaint, by inhalations of steam alone, which were continued almost without interruption for twenty-four hours. Another case resulted favourably which he treated with tannin.

Barthez, of the Hôpital des Enfants, in Paris, treated four cases with the same, and praises inhalation in this complaint very highly.

Dr. Fieber gives fifteen cases treated with the same, in which two-thirds of the patients recovered. Fieber also reminds his readers that alkalies are said to dissolve the croup membrane.

Schnitzler gave bromide of potassium with very satisfactory results. Küchenmeister asserts that lime-

water dissolves the croup membrane, and Professor Biermer administered this remedy to a girl of fifteen, who was attacked with croup, and the effects were very favourable.

### ŒDEMA OF THE GLOTTIS.

(*Angina laryngea œdematosa.*)

This complaint is almost always fatal, but Troussseau, the celebrated physician of the Hôtel-Dieu, in Paris, treated it with brilliant success by giving strong inhalations of tannic acid. The disease consists of a sudden serous effusion in the sub-mucous tissue about the glottis. One patient who had been attacked by Œdema of the Glottis after inflammation of the throat was able to leave the hospital in four days. In another case this treatment was again successful, although the surgeon had been summoned to perform tracheotomy.

### ULCERATION IN THE LARYNX.

No instances have as yet been given in medical literature of treating the ulceration occurring during small-pox or typhus by means of inhalation.

### SYPHILITIC ULCERATION OF THE LARYNX.

Here we can again apply what has been said of the same affections in the throat. Troussseau, Demarquay,

Schnitzler, Lewin, and Waldenburg, have frequently cured such cases by inhalation of corrosive sublimate.

### TUBERCLES IN THE LARYNX.

This complaint is recognised by some Continental writers as an independent disease. Many of the German authors call it consumption of the larynx. Siegle recommends the utmost caution in the local treatment of these ulcers, whether they appear independently, or in connexion with tubercles of the lungs. He has had some success by prescribing narcotics. Lewin recommends nitrate of silver, and Waldenburg alum.

### POLYPI, AND OTHER GROWTHS IN THE LARYNX.

The laryngoscope must decide the question, whether any growth in the larynx should be treated by inhalation or operation. The inhalation of medicated fluids can only be adopted as a curative treatment when an excrescence is small. For larger growths inhalation can only be palliative, and produce temporary diminution and relief. Tannic acid and alum are to be used. Syphilitic excrescences yield to corrosive sublimate.

### HOARSENESS AND LOSS OF VOICE. (*Aphonia*)

Hoarseness is only a symptom of some disturbance in the vocal organs, and has been mentioned before ; we will here only refer to some other forms of it.

### HYSERICAL APHONIA.

The cause of this complaint is disturbance in the nervous system. The laryngoscope shows us no pathological change. Siegle mentions a case of absolute aphonia, proceeding from hysteria, in which the vocal cords were totally paralyzed. This case had been treated by many physicians without the slightest success. After a few inhalations of alum, the voice was in some degree restored. The patient was soon afterwards completely cured by the local application of electricity.

### SUDDEN HOARSENESS, OR LOSS OF VOICE AFTER TAKING COLD.

Siegle treated a case of this kind where there was entire loss of voice. The laryngoscope showed that the vocal cords acted imperfectly, but no other pathological change was present. After using inhalations of alum for a week, the patient was perfectly cured.

### APHONIA, OR LOSS OF VOICE AFTER OVER-EXERTION.

Trousseau, Lewin, and Siegle treated cases of hoarseness occurring without pathological changes by medicated inhalations. Siegle mentions four cases of singers (one contralto, and three sopranis), who lost the power of intoning their highest notes as they had been in the

habit of doing. This abnormal change took place in each case suddenly, while the ladies were engaged in some fatiguing performance. The upper notes were no longer pure and steady ; they could still be intoned, but not sustained. Alum produced a quick and lasting cure.

### HOOPING COUGH. (*Tussis convulsiva.*)

Cases of this very troublesome complaint have been treated after the manner we so strongly advocate, and the results have always been extremely satisfactory.

Dr. Fieber mentions a very severe case which had lasted for two months before he began to treat it, using hyoscyamus with olive oil and gum arabic ; the recovery was complete in eight days. Gerhardt speaks very highly of sesquichloride of iron. In two cases, where Siegle employed alum, the attacks of cough became less severe after the first inhalation, and the expectoration lost its bloody tinge. In the case of the younger child of three years old, the recovery was complete in eight days ; in that of the elder in ten. Comparing this with the usual protracted course of the complaint, facts seem to speak so plainly as to make words almost needless.

### DISEASES OF THE BRONCHI.

*Acute Bronchitis.*—Very few cases of this complaint have as yet been mentioned in the medical literature of

inhalation. Waldenburg, however, recommends muriate of ammonia and chlorate of soda.

*Chronic Bronchitis.*—Every one who has made use of inhalation in healing this affection will agree with Dr. Fieber, that no other local or constitutional means can stand any competition with it. The treatment must be varied according to the different symptoms. We here enumerate the principal ones:—

1st. When the irritation and cough are not very troublesome, the difficulty of breathing but slight, and the percussion normal, the inhalation of alum or tannin, with morphia or chloride of iron, will be found efficacious. 2d. When the cough is violent, and the expectoration difficult and scanty, muriate of ammonia; chlor. soda; carbon. potass, and narcotics are the remedies most used. Fieber highly praises the effects of a *mixtura oleosa*, and the inhalation of pulverized warm water has been often very useful. 3d. Where quantities of a yellowish-grey mass are easily expectorated (from which there must be a great drain on the constitution), and the general health much impaired, such patients are often considered by their friends to be consumptive; their complexion is sallow, and the slightest exertion takes away their breath. In such cases the remedies pointed out are those which diminish the secretion, such as sulphate of zinc, tar-water, &c. Dr. Fieber cured a patient in eight days, who had been suffering from this form of chronic bronchitis for twenty-five years, by means of the former, and Lewin speaks very highly of the latter remedy.

*Dilatation of the Bronchi.*—One of the occasional evil consequences of chronic bronchitis, inflammation of the lungs, &c. is the enlargement of parts of the bronchial tubes. Cavities or pouches are thus formed, in which the secretion collects, stagnates, and is expectorated at intervals in large quantities, after a severe attack of coughing. The expectorated matter is very fetid. The constitution suffers even more than in the severer forms of chronic bronchitis by this great drain upon it. Some writers assert that there is a considerable loss of albumen in the expectorations. General hydrops and gangrene of the lungs are no uncommon sequel to this disease. Skoda, the greatest ornament of the celebrated medical school of Vienna, first directed attention to the beneficial effect of turpentine inhalations in cases of enlargement of the bronchi. At the time he wrote it was the only remedy (being an ethereal oil); but the possibility of using pulverized fluids has greatly added to the number of medicines at our command which are just as efficacious, if not more so. In many cases of this description, alum, tannin, turpentine, aqua picea, and creosote have been used with great success.

#### NERVOUS ASTHMA. (*Asthma nervosum.*)

Formerly, every difficulty of breathing occurring without fever was called asthma. Now, however, the name of asthma is usually only applied to a diseased irritation

of the functions of the vagus. This causes spasm of the contractile elements of the minuter bronchial tubes.

Emphysema, disease of the heart, and the larger blood-vessels, which have so frequently been observed at the dissection of individuals who have suffered from asthma, can only be regarded as predisposing causes.

Wistinghausen employed solutio arsenicalis Fowleri with rapid and lasting effect. Lewin also praises the action of arsenic, which is well known to have been long and generally used by mountaineers as a remedy for asthma. Waldenburg recommends chlor. soda; opium tinct.; oleum pini, and liquor. pyro-acet.

#### DISEASES OF THE LUNGS.

*Emphysema.*—The treatment of this complaint differs in no wise from that we have recommended in chronic bronchitis, since it is chiefly for the chronic catarrh accompanying this enlargement of the air cells that the patient seeks medical advice. Frequent catarrh of the bronchi is no doubt one of the chief exciting causes of emphysema, and although when once established the enlarged air cells cannot be reduced, the progress of the disease can be arrested by a timely treatment of the exciting cause. Leiblinger administered oil of turpentine and oil of juniper to patients suffering from this affection.

CONSUMPTION. (*Tuberculosis.*)

The importance of the subject now before us will sufficiently excuse our discussing it at greater length than the affections previously mentioned.

We will not here enter into the question of its nature—whether it be hereditary, or whether it be identical with scrofula; our space is too limited: we shall, therefore, only treat of the subject practically.

It is evident that inhalation must not be regarded as a radical cure for this complaint; but it certainly is, as a local treatment, the best means we have. Tuberculosis is not merely a local disease, but rather the localisation of a generally diseased condition. Particularly in the latter stages of this illness, the life of the sufferer is not only threatened by the suppuration in the lungs, but also by the deficient oxygenation of the blood, and frequently by accompanying diseases of different organs; it is therefore impossible to adopt any one specific treatment calculated to meet all these dangers. We have, unfortunately, so many opportunities of remarking this disease,—its commencement, its course, and too often its fatal termination, that the external appearances which it presents are well known almost to every one.

The first indications of the complaint to which, in the later stages, we give the name of consumption are: irritation and sensitiveness of the organs of respiration,

dry cough, or an increased secretion of the mucous membrane with disposition to catarrh. The physical examination of the chest shows no symptom of an abnormal condition, except that of catarrh; but the general appearance of the patient—perhaps hereditary predisposition, &c.—show us very plainly what course the illness is likely to take. At this period a suitable medical treatment has the best prospect of success; it is also absolutely necessary to enforce strict rules of diet and manner of living in order to strengthen the constitution and fortify it against both external and internal causes of disturbance. Let no one who may remark these symptoms in themselves or those belonging to them, allow this period to pass over. Here, more than at any time, should we remember the maxim—*Principiis obsta!* and act upon it.

The objects of local treatment must be the catarrh, the inclination of the mucous membrane to inflame, &c. Astringents, narcotics, and expectorants are the medicines to be selected from.

When the disease of the lungs is established—and this may be called the second stage—the cough becomes habitual, the larynx irritable, and the expectoration grey and transparent. On examination we find the parts above and below the collar-bone are sunk, and do not expand even during deep inspirations; the intercostal spaces are also flattened. Fatigue is felt after the slightest bodily exertion, palpitation, slight fever towards evening, and the palms of the hands are hot,

The appetite is frequently still good, and there is as yet no loss of weight. When this stage is reached tubercles have begun to form. The object of treatment should now be to prevent them from softening, by inhaling such medicines as decrease the irritation and local inflammation of the bronchi and the substance of the lungs. The remedies must therefore be chosen from among astringents and narcotics.

It is hardly necessary to remind our readers that this treatment must be assisted by the observance of strict dietetic rules; nourishing and easily digestible food, and pure good wine and beer in small quantities; brandy and all kinds of spirits to be strictly avoided. The patient should as much as possible guard against changes of temperature both by day and night; the bedroom should be kept well ventilated and tolerably warm. In fine weather moderate exercise in the open air should be taken, guarding against fatigue. The lungs themselves should be exercised by frequently practising deep, slow inspirations and expirations, the hands being placed on the table while doing so to support the shoulders. The prognosis, under favourable external circumstances, is by no means hopeless, and perfect recovery not uncommon.

In the choice of medicines and their doses, and in the manner of inhaling, the greatest care has to be observed. Dr. Siegle mentions a case where an overdose of thirty drops of turpentine was inhaled, and dangerous symptoms were the immediate consequence.

In the *third* and more advanced stage of the complaint, the tubercles have already softened, and tubercular cavities exist in the lungs. The symptoms are : a distressing cough, thick expectorations (a microscopic examination of which shows the characteristic elastic fibre, which is, in fact, the decayed substance of the lung itself), the general health disturbed, much thirst, appetite bad (this latter symptom often attributable to the quantity of medicine taken, which has interfered with the functions of the stomach), the sad catalogue ending with fever and nocturnal perspirations. Even this stage is not quite hopeless ; cavities are known to have healed, and the progress of the disease can perhaps still be arrested. Inhalation is the best means of administering medicines to assist expectoration, or to subdue the irritation that produces the severe and lengthened fits of coughing, which sometimes appear to threaten suffocation. The almost constant disturbances in the digestion must be treated separately. Experience has shown us that after even very few inhalations the cough is less frequent and painful, expectoration easier, and the secretions are no longer retained to stagnate in the cavities. By their removal the danger of the putrid matter being resorbed by the blood is avoided. Such remedies as alteratives and disinfectants must be resorted to, to lessen and alter the secretions. Drs. Siegle and Waldenburg highly recommend aqua picea, turpentine, and chloride of iron ; the two former, should the expectoration be very fetid.

We will only add a few words regarding the treatment to be observed in the last stage of this complaint, where a fatal result is almost inevitable: Even here inhalation is the best means of lessening the patient's sufferings, as it affords us the means of diminishing the irritation, which produces constant cough, and of making the expectoration much easier, and thus procuring for the patient tolerable days and quieter nights. No one who has had the care of sufferers in the last stage of this sad complaint will undervalue such effects.

An artificial sea air, often very acceptable, can be produced in the patient's own room by means of the inhaler. Becker, of Moscow, believes that he cured cases of chronic consumption in this manner by impregnating the atmosphere of the rooms with salt, to which he added muriate of ammonia. In this stage of the disease the medicines to be selected from are chiefly narcotics and disinfectants.

Dr. Siegle, during a long residence in Italy, observed, as many other medical men have done, that the change of climate, which in the earlier stages of the complaint is often very beneficial, is but too frequently undertaken *too late*. In what a hopeless state of illness are patients frequently sent from home, families separated, and anxiety increased, and this often only to secure a somewhat more favourable atmosphere! It has just been shown how the same advantage can be, to a certain extent, obtained at home by inhalation, and by producing an artificial atmosphere in the patient's own

rooms, releasing them from the necessity of undertaking a fatiguing journey, and encountering all the inconveniences of a sojourn in a foreign land.

Hæmorrhage, a most important and alarming symptom of this disease, we shall now treat separately.

### HÆMORRHAGE.

In treating this most alarming symptom, nothing can compete with the inhalation of pulverized medicines. Had this system nothing else to recommend it, the contrary of which has, we trust, been fully established, its wonderful and speedy effect in hæmorrhage would render it the duty of every practitioner to examine what is urged in its favour.

Chloride of iron, to which a narcotic should be added, is of all astringent medicines the safest and best in these cases. The inhalation must be continued so long as the expectorated blood has a bright red colour, and only when the expectoration becomes thick and of a dark hue can we safely believe that the source of the hæmorrhage has been closed. Should it from time to time recur, many authors prefer alum to chloride of iron as more lasting in its effects. (Lewin, Leiblinger, Schlesinger, &c.)

Siegle publishes the case of a young man of thirty years of age, who without any previous symptom lost thirty ounces of blood from the lungs in a very few minutes. When Siegle saw him, each cough filled his

mouth with frothing arterial blood. The haemorrhage was stopped by one inhalation of chloride of iron with aqua amygd. The patient bore the inhalation well, and continued this treatment for four weeks. There was not the slightest return of haemorrhage. A careful examination of the chest established tuberculosis of the apex of the lungs. In two other cases under Siegle's treatment, in which the expectoration was only tinged with blood, and where doubt existed as to the nature of the complaint, the same remedy was ordered, and with the same effect.

Prof. von Zdekauer, in St. Petersburg, describes cases of severe haemorrhage which he treated in a similar manner. In the first and fifth case the haemorrhage stopped after the first inhalation, in the second after the fourth, in the third after the second, and in the fourth after the third.

Dr. Lingen, of the same city, reports a severe case which he also successfully treated with the same means.

Fieber reports three most satisfactory cases, in one of which he used sulphate of zinc.

Schnitzler stopped tubercular haemorrhage with alum. Leiblinger treated two instances of the same with alum and chloride of iron.

Dr. Lewin has published an account of thirty-six cases. In twenty-nine the haemorrhage ceased after the first inhalation, in seven it had to be repeated. In general the attack did not return, and in the few

instances where it did, the repetition of inhalation was always followed by success. The remedies used by Lewin were those above mentioned—chloride of iron, and in a few cases, alum and tannin.

Tobold published twenty-one cases where the attack stopped after one, two, or three inhalations of alum.

Wedemann, six cases where tannin and chloride of iron were used.

Waldenburg, six cases, all of which ceased after the first inhalation; his remedies the same.

Schlesinger, four cases, under similar treatment.

Leiblinger, two cases, treatment similar.

Hillairet, a case of frequent and obstinate hæmorrhage with fetid bronchial secretions, cured by chloride of iron.

#### DESCRIPTION OF DR. SIEGLE'S INHALER.

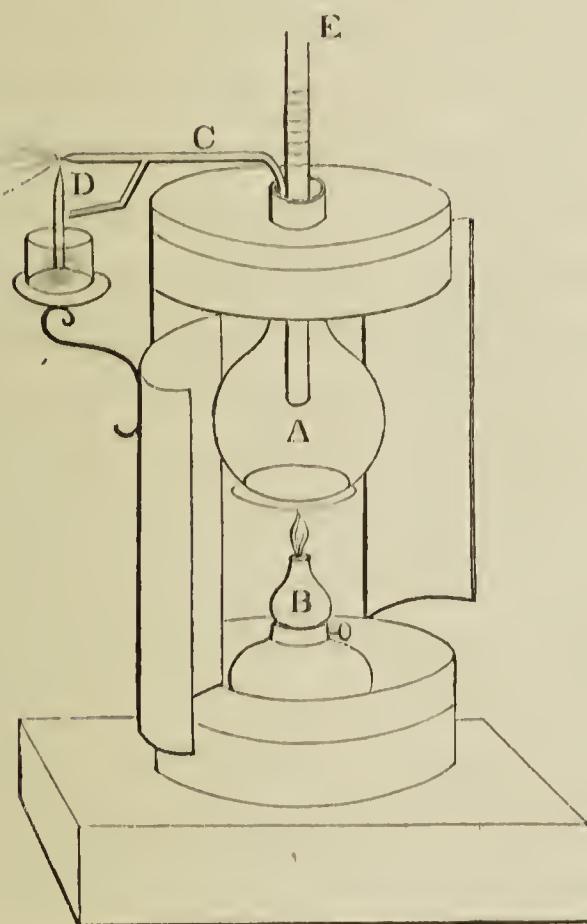
Before describing the instrument invented by Dr. Emil Siegle, of Stuttgardt, for the inhalation of medicated fluids, and which we consider perfect in its kind, we will in a few words notice those which preceded it. The honour of invention belongs to Sales-Girons, who in 1858, exhibited his apparatus before the Academy of Paris, calling it “Pulvérisateur portatif des liquides médicamenteux.” Charrière constructed it under his direction. This instrument, by means of compressed air, forces the medicated fluid through a tube with a very fine aperture against a metal plate. Here the fluid

is arrested, dispersed in spray (pulverized), and inhaled by the patient. Modifications of this instrument were numerous; those of Matthieu of Paris, Schnitzler of Vienna, and Lewin and Waldenburg of Berlin, are worthy of mention. Dr. Bergson, of Berlin, then constructed an apparatus differing from all former ones in an important point. This ingenious instrument consists of two glass tubes with capillary apertures at one end, and so connected with each other that these ends nearly meet at right angles. The perpendicular tube is placed with its wider end in the medicine glass; then, if compressed air is forced into the horizontal tube, the air is exhausted in the perpendicular one, consequently the medicated fluid rises in it, and on reaching the capillary aperture is dispersed, by means of the compressed air in the horizontal tube, in the minutest particles of spray.\* Adapting this invention, Dr. Siegle constructed an instrument in which steam is ingeniously applied as the dispersing medium. The annexed drawing will show the simplicity of this inhaler, and the facility with which it is worked in comparison to the complicated apparatus required for many others. (See Plate).

A simple flask (A) partially filled with distilled water, placed over a spirit lamp (B), (provided with a screw to regulate the flame) engenders the steam. This

\* The little instrument called "Odorator," now so often seen in this country, and doubtless familiar to most readers, is only the Bergson Tube.

passes through the horizontal tube (C), and exhausting the air in the perpendicular tube (D) which stands in the medicated fluid, causes the medicine to rise, which is dispersed in the finest spray by means of the steam, and inhaled by the patient along with it.



To insure absolute safety, a thermo-barometer (E) is inserted in the gutta percha stopper, and every flask is tested to bear a fourfold atmospheric pressure. By means of the thermo-barometer, the force of the steam can be accurately regulated.

The chief advantages of this instrument over others are:—1.—*The high temperature* (from fifteen to twenty

Celsius), which can be maintained, and which is far better adapted for medical inhalations than those of former instruments where this was *not* the case. 2.—*The apparatus works alone* once the lamp is lighted and the water brought to boil. The flame of the spirit lamp can be increased or diminished at pleasure. The stream of steam remains equal in strength and temperature. The patient is at rest, and has only to observe that the thermo-barometer does not rise above 2°. With former instruments the patient himself, or some other person, was required to work the contrivance for producing the necessary pressure of air. 3.—*The extreme minuteness of the particles of the medicated fluid*, which enables them to penetrate further into, and act more easily on all parts of the respiratory organs. 4.—*The tube through which the medicated fluid passes is of glass*, thus even those substances which most easily decompose can be used with safety.

We may add that this inhaler has been used with the greatest success in Germany, and it is now introduced into almost all the hospitals of that country, and many of those in France.

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C. MILNER, M.D.

38, SOUTH AUDLEY STREET,  
*February, 1865.*

TABLE of the most important MEDICINES as yet applied  
for INHALATION, and their Dose to One Ounce of  
Water.

Tinctura Ferri Sesquichloridi . . . . .	2—20 minims.
Argenti Nstras . . . . .	1—10 grains.
Alumen . . . . .	5—30 grains.
Acidum Tannicum . . . . .	1—20 grains.
Zinci Sulphas . . . . .	5—20 grains.
Extractum Ratanhiæ (not in the Pharmacopœia).	
Tinctura Iodinei . . . . .	1—20 minims.
Potassii Iodidum . . . . .	2—20 grains.
Potassii Bromidum . . . . .	1—10 grains.
Potassæ Chloras . . . . .	5—10 grains.
Solutio Arsenicalis Fowleri . . . . .	1—20 minims.
Hydrargyri Bichloridum . . . . .	$\frac{1}{10}$ — $\frac{1}{2}$ grain.
Sodii Chloridum . . . . .	5 gr.—2 drachms.
Ammoniæ Hydrochloras . . . . .	10 gr.—2 drachms.
Potassæ Bicarbonas . . . . .	10 gr.—2 drachms.
Aqua Picea . . . . .	1—10 minims.
Oleum Terebinthinum . . . . .	1—2 minims.
Oleum Cadimum (not in Pharmacopœia) . . . . .	2—4 minims.
Aqua Lauro-Cerasi . . . . .	10—20 minims.
Morphiæ Acetas . . . . .	$\frac{1}{6}$ — $\frac{1}{2}$ grain.
Tinctura Opii . . . . .	1—3 minims.
Extractum Hyoscyami . . . . .	$\frac{1}{4}$ —2 grains.
Extractum Cannabis Indicæ . . . . .	
Extractum Conii . . . . .	1—6 grains.
Belladonna . . . . .	
Atropiæ Sulphas . . . . .	$\frac{1}{40}$ grain.
Quinæ Sulphas . . . . .	$\frac{1}{40}$ grain.
Glycerina (Demarquay) . . . . .	
Oleum Olivarum . . . . .	
Mineral Waters . . . . .	

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